

## **Visions in Geophysics**

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### **Abstract**

It is inspiring to see the promotion and growth of new technologies and specifically Machine Learning applications in geophysics in the oil/gas industry over the last 20 years, with a lot of special developments i.e. in seismic and log data analysis. This development is expected to exert profound effects on the use of human labour. There is no doubt that the face of work will continue to change, and geoscience will be no exception. The earth sciences are seeing grand challenges and at the same time huge opportunities.

AI and Machine Learning known since the 60s and having a boom in the 90s in our industry now gaining an incredible momentum stimulated by other industries, computing power and the mere amount of available information (big data). The drone technology is enabling geoscientific operations in remote hostile environments with minimizing the pathogen imprint. Satellite geophysics will play an important role in remote exploration with a resolution never known before. The use of fibre optic techniques will revolutionize seismic operations in time and space. Earth quake predictions will improve significantly and can be used for induced seismicity interpretations. Remote drilling, logging and log interpretation will become natural. In-depth reservoir understanding will evolve by dynamic micro-CT imaging techniques. The list can be continued and the revolution has just started. It will be hardly to imagine where geophysics will be standing in 10-20 years.

However, the question is how do we face and tackle this working environment turnover. How will the daily work of geoscientist in the industry change? Which kinds of scientific capabilities are needed? How are the universities educating our next generation? How will an adequate skill pool look like? What actions need to be considered and immediately initiated?

We will give no answers, because we don't know the answers! It is our intention to share our view on some possible interesting developments and implications on the field of geoscience and hopefully trigger a discussion what we as German HC industry can and should do. As history shows not everyone will prosper equally in times of radical disruptive changes.